

In re: Appln No. 10/642,560  
Amendment dated March 19, 2006  
Reply to Office action of January 26, 2006

### **Remarks**

Claims 1, 3 - 22, and 24 - 25 were pending prior to the present amendment. Upon entry of the present amendment, Claims 2, 10 - 12, 14, and 23 are canceled. Claims 3 - 22, which were dependent claims on Claim 1, are in the proper form where the independent preamble is "An enhanced nanocomposite" therefore the dependent claim preamble is correct as "The enhanced nanocomposite". Independent Claims 1, and 24-25 are modified to be restricted to powders and layers respectively of less than 100 nanometers. Claims 24 and 25 have been modified to being restricted to particle size from 1 to 100 nanometers, which is within the original specification (the definition of term "nanoscale"). Claims 26 - 29 are new dependent claims on independent claims 24 and 25. Only three independent claims are pending and the total number of claims remains less than the 23 earlier pending, it is believed that no additional claim fees are required.

### **35 USC 112, para. 1: Claim Rejections**

The Examiner cited the earlier allowed Claims of 2-3 and 10, which in the prior office action became independent Claim 1 in view of Hawkins et al 5,976,419 (hereinafter referred to as '419). Applicant has modified all independent Claims 1, and 24 - 25 to be restricted to the powder size limitation of less than 100 nanometers. '419 fails to anticipate the quantum effect realized when particle size is less than 100 nanometers in terms of phonon and electron tunneling. Applicant has addressed this rejection by amending the appropriate claim limitations.

Because the Examiner's objections have been overcome, Applicant respectfully requests withdrawal of these rejections.

### **35 USC 112, para. 2: Claim Rejections**

Claims 3 - 22 were rejected by the Examiner as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. Applicant, in view of

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conversation on July 7<sup>th</sup>, 2006 with Examiner, confirmed in fact that the preamble was correct in view of the independent Claim 1 that these dependent Claims were based on.

Claims 8 - 9 were rejected due to insufficient antecedent basis. Applicant has modified, per Examiner suggestion, to separately and individually reference the layer of nanocomposite doped with conductive additives and the layer of nanocomposite doped with semiconductor additives.

### **35 USC 102; Claim Rejections**

#### **Hawkins et al (5,976,419) Cannot be properly cited to render amended Claims 1, 3-6, 10-12, and 14-18 as being anticipated**

Claims 1, 3-6, 10-12, and 14-18 were rejected as being anticipated by '419. The examiner contends that '419 teaches the use of powders near 1 micron, which in view to the previously submitted claim not having the restrictive limitation in this current response to office action of powders between 1 and 100 nanometers, was correct. As noted earlier, powders must have particle size of less than 100 nanometers in order to achieve the inventive quantum effect. With respect to independent Claims 1 and 24 - 25 applicant has responded by incorporating the limiting language of being between 1 and 100 nanometers as a new limitation of Claim 1 thus reflecting the absence of any reference by '419 to nanoscale powders.

With regard to method steps 5 - 6 as being anticipated by '419, Applicant notes the combination of limitation of independent Claim 1 to powders of less than 100 nanometers, and the further fundamental difference between the creation of an electrical voltage potential to create a sacrificial loss of Aluminum powder to protect substrate against corrosion, and the quantum effect including the active conversion of phonons to electrons, or cold electrons to hot electrons.

### **35 USC 103(a); Claim Rejections**

Claims 19 - 22 and 24 - 25 were rejected as also being unpatentable over '419. Applicant again notes the combination of limitation to independent Claims 1, and 24 - 25 to powders of less

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than 100 nanometers, and the further fundamental difference between the creation of an electrical voltage potential to create a sacrificial loss of Aluminum powder to protect substrate against corrosion, and the quantum effect including the active conversion of phonons to electrons, or cold electrons to hot electrons.

### Summary

Applicant respectfully submits that the presently pending claims have overcome the Examiner's objections. Accordingly, Applicant respectfully request allowance of the pending claims. Should the Examiner require any further information or wish to discuss any aspect of this Response, Applicant respectfully request that the Examiner contact the undersigned at the telephone number listed below. It is believed that no fees are required for this filing.

Respectfully submitted,  
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